

Algebra 2 GHP
Quadratic Equations

Name _____
WS _____

Completing the Square

For each expression, find the number you would add to make it a perfect square trinomial.

1. $x^2 + 10x + ?$ _____ 2. $y^2 - 6y + ?$ _____ 3. $z^2 - 5z + ?$ _____
4. $x^2 + 11x + ?$ _____ 5. $y^2 + \frac{1}{3}y + ?$ _____ 6. $z^2 - \frac{3}{5}z + ?$ _____

For each equation, find the value of k that would make the left side a perfect square trinomial.

7. $y^2 + ky + 36$ _____ 8. $z^2 - kz + 49 = 0$ _____
9. $x^2 - kx + 64$ _____ 10. $x^2 + kx + 100 = -12$ _____

Solve by taking the square root of each side.

11. $(z + 5)^2 = 36$ _____ 12. $(x - 2)^2 = 18$ _____
13. $(x + 7)^2 = \frac{49}{16}$ _____ 14. $y^2 + 8y + 16 = 1$ _____

Solve by completing the square.

15. $x^2 + 4x - 21 = 0$ _____ 16. $y^2 - 2y - 48 = 0$ _____
17. $y^2 + 10y - 3 = 0$ _____ 18. $z^2 + 12z + 4 = 0$ _____
19. $x^2 - 14x + 58 = 0$ _____ 20. $x^2 - x - 5 = 0$ _____

Application

21. **Number Theory** The square of a number, decreased by ten times the number, is equal to -24 . What is the number? _____

MIXED PRACTICE

Simplify.

22. $\sqrt{28}$ _____ 23. $\sqrt{\frac{3}{5}}$ _____
24. $\sqrt{-50}$ _____ 25. $\sqrt{\frac{-8}{11}}$ _____

Solve by completing the square.

26. $x^2 + 12x + 35 = 0$ _____ 27. $y^2 - y - 1 = 0$ _____
28. $4z^2 - 8z + 1 = 0$ _____ 29. $5x^2 - 8x = -6$ _____